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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,219	02/12/2002	Steven J. West	04518/00019	6185

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EXAMINER

VESTAL, REBECCA MICHELLE

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/074,219

Applicant(s)

WEST ET AL.

Examiner

R. Michelle Vestal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 10-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1 and 10-13 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 12 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

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### **DETAILED ACTION**

Receipt is acknowledged of the amendment dated February 28, 2005, which has been placed of record in the file.

Claims 1 and 13 are amended. Claims 2-9, 14 and 15 have been withdrawn.  
Claims 1 and 10-13 are pending and are examined in this office action.

All objections and rejections not set forth below are withdrawn.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,608,148 to Frollini, Jr. et al., referred to hereafter as Frollini, in view of U.S. Patent No. 5,362,577 to Pedicini.

Frollini discloses a combination glass pH electrode (Col. 1, lines 7-8), the standard potential of which is stabilized (Col. 1, lines 8-10) by means of the following structural modification:

incorporation of a reference electrolyte compartment vent (Fig. 1, 50) that admits sufficient air to permit flow of reference electrolyte through the liquid junction under the influence of gravity.

Although Frollini does not disclose that a partial vacuum is created inside the compartment, this feature is an inherent characteristic of the compartment vent due to the flow of reference electrolyte through the liquid junction and the influence of gravity.

Frollini does not disclose expressly the size of the compartment vent or that the reference electrolyte compartment vent minimizes moisture loss or pick-up from the surroundings.

Pedicini discloses an electrochemical cell with an electrolyte compartment vent, sized to minimize moisture loss or pick-up from the surroundings (Col. 5, lines 8-11).

Frollini and Pedicini are analogous art because they are from a similar problem solving area, that is minimizing electrolyte loss or leakage in an electrochemical cell.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the electrolyte compartment vent of Pedicini with the

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combination pH electrode of Frollini because such a vent system minimizes the loss of electrolyte from the electrochemical cell and prevents contaminants from entering the cell, as taught by Pedicini (Col. 10, lines 57-60). Minimizing electrolyte loss would require less frequent refilling of the reference electrolyte compartment, thereby resulting in less maintenance time and cost. Reducing the exposure of the electrolyte solution to contaminants would help ensure reproducibility in measured responses and prolong the useful life of the electrode.

Therefore, it would have been obvious to combine Frollini with Pedicini to obtain the invention as specified in Claim 1.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frollini and Pedicini as applied to claim 1 above, and further in view of U.S. Patent No. 5,143,621 to Bartram et al., referred to hereafter as "Bartram," as evidenced by Aldrich Chemical Company, Inc. catalog.

Regarding Claims 10 and 11, Pedicini discloses an electrochemical cell where the opening to the electrolyte compartment is sufficiently small to prevent contaminants from entering the cell (Col. 3, lines 40-45) and to prevent loss of electrolyte (Col. 12, lines 30-32). Pedicini also discloses that the area of the opening is 0.0003 square inches (or a diameter of 0.5 mm) (Col. 12, lines 33-35).

Frollini does not disclose expressly the size of the reference electrolyte compartment vent. Neither Frollini nor Pedicini discloses that the opening to the reference electrolyte compartment is covered with an elastomeric septum closure that is perforated to permit insertion of a tube.

Bartram discloses a venting system comprising an elastomeric septum closure (Col. 4, lines 26-27) that is perforated to permit insertion of a tube or needle with a small inside diameter compared to its length (Col. 4, lines 31-33). Bartram also discloses that the tube in the septum is a 25 gauge, 5/8 inch long needle (Col. 4, lines 31-33). The Aldrich Chemical Company, Inc. 1992 catalog discloses that a 25 gauge needle has a nominal inner diameter of about 0.3 mm (Page 1990).

Frollini, Pedicini and Bartram are analogous art because they are from a similar problem solving area, that is venting systems for liquid vessels.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to replace the venting system of Frollini and Pedicini with the elastomeric septum perforated by a hollow tube of Bartram because both structures provide equivalent venting means. The elastomeric septum perforated by a needle venting means of Bartram also provides an inexpensive and convenient way, utilizing commercially available materials, to vent the cell instead of relying on costly

microfabricating techniques such as machining or etching to create a vent hole of millimeter size dimensions.

Therefore, it would have been obvious to combine Frollini and Pedicini with Bartram to obtain the inventions as specified in Claims 10 and 11.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frollini and Pedicini as applied to claim 1 above, and further in view of Bartram and U.S. Patent No. 5,575,769 to Vaillancourt.

Regarding Claims 12 and 13, Pedicini discloses an electrochemical cell, where the opening to the electrolyte compartment is sufficiently small to prevent contaminants from entering the cell (Col. 3, lines 40-45) and to prevent loss of electrolyte (Col. 12, lines 30-32). Pedicini also discloses that the area of the opening is 0.0003 square inches (or a diameter of 0.5 mm) (Col. 12, lines 33-35).

Frollini does not disclose expressly the size of the reference electrolyte compartment vent. Neither Frollini nor Pedicini discloses that the opening to the reference electrolyte compartment is covered with an elastomeric septum closure with a slit that can be pried open with a delivery tip to replenish electrolyte in the compartment.

Bartram discloses a venting system comprising a silicone septum closure (Col. 4, lines 26-27) that is perforated to permit insertion of a needle (Col. 4, lines 31-33).

Vaillancourt discloses an elastomeric septum provided with a slit, which typically penetrates the entire length of the septum and facilitates passage of a needle through the septum (Col. 1, lines 33-37), which was commercially available at the time the invention was made (Col. 7, lines 62-63). Vaillancourt also discloses that the elastomeric slit septum used may have a Shore A hardness of from 25-60 (Col. 2, lines 58-62).

Frollini, Pedicini, Bartram and Vaillancourt are analogous art because they are from a similar problem solving area, that is venting systems for liquid vessels.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to replace the venting system of Frollini and Pedicini with the elastomeric septum perforated by a needle venting means of Bartram because both structures provide equivalent venting means. The elastomeric septum perforated by a needle venting means of Bartram also provides an inexpensive and convenient way, utilizing commercially available materials, to vent the cell instead of relying on costly microfabricating techniques such as machining or etching to create a vent hole of millimeter size dimensions. Furthermore, it would have been obvious to a person of ordinary skill in the art to use a slit septum in the venting system to avoid obstructing the



fluid path of the needle with cored out septum material as the needle penetrates the septum and to facilitate passage of the needle through the septum, as taught by Vaillancourt (Col. 1, lines 29-37).

Therefore, it would have been obvious to combine Frollini and Pedicini with Bartram and Vaillancourt to obtain the inventions as specified in Claims 12 and 13.

### ***Response to Arguments***

Applicant's arguments filed February 3, 2005 have been fully considered but they are not persuasive.

Applicant's arguments regarding the new limitation that claim 1 "requires the formation of a partial vacuum in the electrolyte chamber" have been considered and are addressed in the rejection of claim 1 in this office action.

Applicant argues that given the size of the "fill hole" (applicant's words), the inlet hole of Frollini cannot function as a vent which minimizes moisture loss or pick-up from the surroundings. This argument is not persuasive because 1) Frollini does not disclose the size of the inlet hole, 2) Frollini's figure 1 is not drawn to scale and the size of the inlet hole 50 is greatly exaggerated in order to make it's presence clear in the drawing, 3) it is obvious to a person of ordinary skill in the art to make the inlet hole as small as

possible to avoid loss of electrolyte liquid and to prevent contamination from impurities in the surrounding environment and 4) applicant discloses that the “vent” in the instant application also serves “to allow convenient replenishment of electrolyte.” Compared to an open, uncovered structure, any size hole would minimize moisture loss or pick-up from the surroundings. Accordingly, Examiner interprets the inlet hole of Frollini to be an electrolyte compartment vent which minimizes moisture loss or pick-up from the surroundings.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, all of the references relate to a common problem solving area, venting of a liquid compartment. A person of ordinary skill in the chemical arts is well aware of the sensitivity of pH electrodes to various parameters, such as temperature and reference electrolyte concentration. It is within the knowledge of a person of ordinary skill in the art that the inlet hole of Frollini serves to allow replenishment of electrolyte lost due to evaporation and to provide the necessary means to allow flow of electrolyte to establish electrical connectivity through the liquid junction, otherwise the structure would be sealed.

Pedicini is relied upon to teach the size of the reference electrolyte compartment vent because Frollini is silent in this regard. A person of ordinary skill in the chemical arts would routinely use an elastomeric septum, vented by insertion of a needle, to cover and contain the liquid in a reaction vessel. Bartram is relied up to teach this common means of venting. Vaillancourt is cited to provide evidence of a specific type of elastomeric septum that was commercially available at the time the invention was made. A person of ordinary skill would certainly possess the knowledge of the existence of commercially available septa with the physical characteristics cited by Vaillancourt. Because each of the references is related to a common problem solving area, venting means for a liquid compartment used by those in the chemical arts, the combination of these references is proper.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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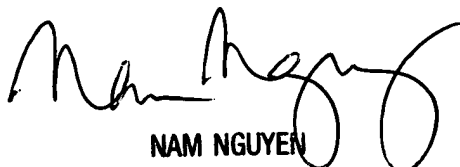
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Michelle Vestal whose telephone number is (571) 272-0524. The examiner can normally be reached on Monday-Friday, 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

rmv / Rmv  
March 22, 2005

  
NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700